



## Short CV

Johan Barnard (Johnny), PhD  
Senior Lecturer: Soil Science



### Courses Presented

#### Current

CROP4834/6834 – Water dynamics in crop production - Undergraduate  
SOIL4824/6824 – Soil physical principles and application – Undergraduate  
SCCS1624 – Introduction to Soil, Crop and Climate Sciences (soil section of module) – Undergraduate  
IRRI6816 – Evaluation of soil water for irrigation suitability – Postgraduate  
IRRI6825 – Evaluation of soil fertility and pest control – Postgraduate  
IRRI6808 – Research project in irrigation management – Postgraduate  
SANR5806 - Assessment and Management of Natural Resources – Postgraduate  
SANR7906 – Advanced Assessment and Management of Natural Resources - Postgraduate

#### Previous

CROP2614 – Concepts in crop production – Undergraduate  
CROP2624 – Production of winter and industrial crops – Undergraduate  
AGR434 – Research methodology – Undergraduate

### Research Focus

Discipline | Soil physics and crop-water relations

Water flow and salt transport in soils and the consequent matrix (drought) and osmotic (salt) stress effects on water uptake and yield of field crops. Application of mathematical algorithms (soil hydrology and crop models) and technology (electromagnetic induction instruments) to support water and salt management decisions at field level.

### Most Recent Publications

- Steenekamp, D., Van Rensburg, L.D., Barnard, J.H., Du Preez, C.C. (2023) Comparison of single vs composite soil electrical apparent conductivity-directed samples of irrigated soils for inorganic nitrogen estimation with electromagnetic induction sensors. South African Journal of Plant and Soil 40, 159-169.
- Seetseng, K.A., Barnard, J.H., Van Rensburg, L.D., Du Preez, C.C. (2023) Canola (*Brassica napus* L.) water use indicators as affected by sustained deficit irrigation and plant density in central Free State, South Africa. Water SA 49, 49, 155-163.
- Barnard, J.H., Du Preez, C.C. (2022) Spatial characterization of total salt in non-saline soil solutions through electromagnetic induction. Catena 216, 106395.
- Gura, I., Du Preez, C.C., Barnard, J.H., Mnkeni, P.N.S. (2022). Short-term effects of conservation agriculture strategies on the soil quality of a haplic plinthosol in Eastern Cape, South Africa. Soil & Tillage Research 220, 105378.
- Barnard, J.H., Matthews, N., du Preez, C.C. (2021). Formulating and assessing best water and salt management practices: Lessons from non-saline and water-logged irrigated fields. Agricultural Water Management 247, 106706.

### Fun Fact

Love to play golf go bowling and write computer applications.

